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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/537,425	03/27/2000	YOSHIO HAGIHARA	15162/01690	4245

24367 7590 01/13/2005

SIDLEY AUSTIN BROWN & WOOD LLP  
717 NORTH HARWOOD  
SUITE 3400  
DALLAS, TX 75201

EXAMINER

HO, TUAN V

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/537,425

Applicant(s)

HAGIHARA, YOSHIO

Examiner

Tuan V Ho

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5,8,15,17,21,24,31,33-38,42,45-51,55 and 58 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5,8,17,21,24,33-35 and 46-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Continuation of Disposition of Claims: Claims withdrawn from consideration are 2-4,7,9-14,16,18-20,23,25-30,32,39-41,43,44,52-54,56 and 57.

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1. Applicant's election without traverse of the species of Fig. 15, including claims 1, 5, 8, 15, 21, 24, 31, 33-38, 42, 45-51, 55 and 58 in paper filed on 8/23/04 is acknowledged. Claims 2,4, 6-7, 16, 22-23, 25-30, 32, 39-41, 43-44, 52-54, 56-57 are withdrawn from further consideration on the merits as non-elected claims.

Noted that claim 17 should be included in elected claims since claims 21, 24 and 31 depend from claim 17.

2. Claims 33 and 47 are objected to because of the following informalities: the phrase "the control electrode" should be changed to "a control electrode". Appropriate correction is required.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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Claims 1 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Hynecek et al (US 6323479 B1).

With regard to claim 1, Hynecek et al discloses in Fig. 1, a photon detecting device that comprises the photoelectric conversion circuit (photo detecting element circuit generates analog voltage signals upon light receiving, col. 2, lines 52-54), and selectively operable (a sub-threshold voltage is used to selectively operate the photosensitive circuit, col. 3, line 1-13), irrespectively of the amount of light in either one of a first mode and second mode (upon receiving light rays, the circuit generates voltage charges in two different modes: linear range and logarithmic range wherein the analog signals are linearly or logarithmically proportional to the light intensity, col. 3, lines 14-17 and lines 25-40 and Fig. 2).

Claim 17 recites what was discussed with respect to claim 1.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art

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are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5, 8, 21, 24, 33, 34, 35, 46, 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hynecek et al in view of Dierickx (US 2001/0045508).

With regard to claim 5, Hynecek et al discloses the same subject matter as discussed with respect to claim 1, except for an amplifying circuit, connected to the converting device, for amplifying the analog electric signal outputted from the circuit.

Hynecek et al does not explicitly disclose any amplifying circuit. However, Dierickx teaches in Fig. 4, using transistor 48 as an amplifying circuit so as to amplify the analog signal from photosensitive element 41; as a result, a strong voltage signal can be transferred to a readout circuit for processing with an improvement of noise to signal).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the transistor of Dierckx into the photosensitive circuit of Hynecek et al so as to amplify the analog signal from the photodiode.

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With regard to claim 8, in the combination of Hyncecek et al in view of Dierickx, there is no capacitor between the circuit and the amplifying transistor 48 used to store voltage charges from the photodiode.

Claims 21 and 24 recite what was discussed with respect to claims 5 and 8.

Claim 33 recites what was discussed with respect to claim 8; wherein in the combination of Hyncecek et al and Dierickx, there is no capacitor.

With regard to claim 34, furthermore, Dierickx discloses the gate of second MOS amplifying transistor 48 that receives voltage signals from photodiode 41 as shown in Fig. 4 [0034].

With regard to claim 35, furthermore, Dierickx discloses the gate of second MOS amplifying transistor 48 that receives voltage signals from photodiode 41 as shown in Fig. 4 and direct current VDD1 is applied to an electrode of transistor 48 and other electrode is connected to output signal line Y [0034].

Claim 46 recites what was discussed with respect to claim 8.

Claims 47 and 48 recite what was discussed with respect to claims 34 and 35.

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5. Claims 15, 31, 36-38, 42, 45, 49-51, 55 and 58 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Merrill discloses a double slope pixel that includes a column output and amplifier.

Tay discloses a CMOs image sensor that includes an amplifier.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TUAN HO whose telephone number is (703) 305-4943. The examiner can normally be reached on Mon-Fri from 7AM to 4PM.

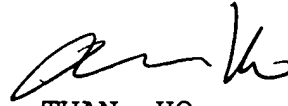
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen, can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed



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to the receptionist whose telephone number is (703) 305-4700.

A handwritten signature in black ink, appearing to read 'Tuan Ho', is positioned above the printed name.

TUAN HO

Primary Examiner

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# PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53(b)(2).

Docket Number	0621.76078	Type a plus sign (+) inside this box -
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## INVENTOR(s)/APPLICANT(s)

LAST NAME	FIRST NAME	M.I.	RESIDENCE (CITY and either STATE or COUNTRY)
Hynecek	Jaroslav		Richardson, Texas
Fox	Eric		Waterloo, Ontario, Canada
Dykaar	Doug		Waterloo, Ontario, Canada

## TITLE OF THE INVENTION (280 characters max)

PIXEL WITH LINEAR AND LOGARITHMIC RESPONSE AND INCREASED SIGNAL SWING

## CORRESPONDENCE ADDRESS

Banner & Witcoff, Ltd.  
1001 G Street, N.W., 11th Floor

STATE Washington, DC	ZIP 20001-4597	COUNTRY USA
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## ENCLOSED APPLICATION PARTS (check all that apply)

<input checked="" type="checkbox"/>	Specification	Number of Pages	3	<input checked="" type="checkbox"/>	Small Entity Statement
<input checked="" type="checkbox"/>	Drawings	on page 2, 4, 5 Number of Pages	3		Other (specify)

## METHOD OF PAYMENT (check one)

<input checked="" type="checkbox"/>	A check or money order is enclosed to cover the Provisional filing fee
	The Commissioner is hereby authorized to charge filing fees and credit Deposit Account Number.
	19-0733
	PROVISIONAL FILING FEE AMOUNT (\$)
	\$75.00

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ NO

☐ YES, the name of the U.S. Government agency and the Government contract number are: \_\_\_\_\_

Respectfully submitted,

SIGNATURE Daniel E. Fisher DATE Sept. 16, 1998

TYPED or PRINTED NAME Daniel E. Fisher REG. NO. (if appropriate) 34.162

☐ Additional inventors are being named on separately number sheets attached hereto

## PROVISIONAL APPLICATION FILING ONLY

Applicant or Patentee: Jaroslav Hyncek, Eric Fox, Doug Dykaar

Attorney Docket#: \_\_\_\_\_

Serial or Patent No.: \_\_\_\_\_ Filed or Issued: \_\_\_\_\_

For: PIXEL WITH LINEAR AND LOGARITHMIC RESPONSE AND INCREASED SIGNAL SWING

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS**  
**(37 C.F.R. §§1.9(f) AND 1.27(c)) — SMALL BUSINESS CONCERN**

I hereby declare that I am:

☐  
☒

the owner of the small business concern identified below;

an official of the small business concern empowered to act on behalf of the concern identified below;

NAME OF CONCERN: DALSA INC.

ADDRESS OF CONCERN: 605 Mc Murray Rd., Waterloo, Ontario, CANADA

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in 13 CFR §§121.3-18, and reproduced in 37 CFR §1.9(d), for purposes of paying reduced fees under §§41(a) and (b) of Title 35, United States Code, in that the number of employees of the business concern (including those of its affiliates) does not exceed 500 persons. For purposes of this Statement: (1) the number of employees of the business concern is the average over the previous fiscal year of the business concern of the persons employed on a full-time, part-time, or temporary basis during each of the pay periods of the fiscal year; and (2) business concerns are affiliates of each other when either directly or indirectly one business concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention entitled: Pixel With Linear and Logarithmic Response and Increased Signal Swing

by inventor(s) Jaroslav Hyncek, Eric Fox, Doug Dykaar

described in ☒ the specification filed herewith.

☐ application serial no. \_\_\_\_\_ filed \_\_\_\_\_

☐ patent no. \_\_\_\_\_ filed \_\_\_\_\_

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below\* and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR §1.9(c) or by any concern which would not qualify as a small business concern under 37 C.F.R. §1.9(d) or a nonprofit organization under 37 C.F.R. §1.9(e). \*NOTE: Separate verified statements are required from each named person, business concern or organization having rights to the invention averring to their status as small entities. (37 CFR §1.27)

FULL NAME N/A

ADDRESS \_\_\_\_\_

☐  
☐  
☐

Individual

Small Business Concern

Nonprofit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR §1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these were made with the knowledge that false statements made willfully are punishable by fine, imprisonment, or both a fine and imprisonment under Section 1001 of Title 18 of the United States Code; and further that false statements made willfully may jeopardize the validity of the application, of any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING Savvas G. Chamberlain

TITLE OF PERSON (other than owner) President

ADDRESS OF PERSON SIGNING: 605 McMurray Rd., Waterloo, Ontario, CANADA N2V 2E9

SIGNATURE: \_\_\_\_\_

DATE: 11 Feb 98